



TAWIRI

Newsletter

Issue No 9, May 2021

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A Need For Co-Existence Approaches





13th TAWIRI SCIENTIFIC CONFERENCE



6th – 8th DEC 2021

Theme

“Wildlife Research for Enhanced Biodiversity Conservation and Livelihood Improvement”

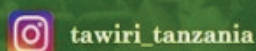
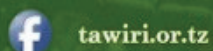
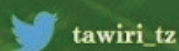
Where

Arusha International Conference Centre
(AICC)

Deadlines: Abstracts: 30th Sept 2021
Full paper: 30th Oct 2021

Inquiries and submission
conference@tawiri.or.tz

Further information
www.tawiri.or.tz



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Issue No 9, May 2020

Message from the Director General



Dr. Eblate E. Mjingo

In recent years, Human-Wildlife Conflicts (HWC) is increasingly featuring as a prominent conservation challenge affecting wildlife survival and human prosperity. Human population growth along the wildlife areas is important determinant of HWC as it causes humans and wildlife to compete for space and other resources. Human presence and activities on migratory routes, wildlife corridors, breeding sites and dispersal areas are reducing the home ranges of many species and interrupting the ecological processes and functions of these critical wildlife areas.

The incidences of wildlife-related accidents to people among others, crop damage, infrastructure destruction, people's death and injury, zoonotic diseases and livestock depredation are widespread in areas of high interactions between humans and wildlife. When livelihood is negatively impacted by wildlife without adequate measures to address the challenge local communities, resort to retaliation and illegal activities that can guarantee their survival. If the threatening cycle will be omitted, will enable a smooth protection of rural livelihoods, reduce their vulnerability, thus will result into balancing the losses with benefits and foster community-willingness to participate in conservation

TAWIRI as a research institution strives to attain high level of excellence in conducting, coordinating, advising and providing scientific information on wildlife conservation and management. In October, 2020, the first five years (2020-2024) National Human-Wildlife Conflict Management strategy was launched. Among the important strategic objectives, the strategy aims at equipping communities with necessary knowledge and skills on best options nonlethal methods to reduce HWC and increase resilience to conflicts caused by wildlife among communities living adjacent protected areas. TAWIRI through its mandatory role of disseminating, training and awareness raising to communities using research findings, understand that, more scientific information is needed to realize the future of our biodiversity richness and its role in supporting people's livelihoods and contributing towards the country's economic growth. TAWIRI has launched a training program in April 2021 on best, less expensive and easily available materials to mitigate conflicts caused by wildlife specifically elephants. The training focused on the most prominent conflict between people and elephant. Currently, there has been an increased HEC throughout the country about 53 districts are highly affected by HEC. The training program focuses on training of Trainers of Trainees (ToTs), who are thereafter expected to spread the knowledge to their community members.

With great honor, I would like to invite you to read and enjoy this newsletter, to explore important information on current Human-Wildlife conflicts and some measures taken to address the challenges.



Dr. Eblate E. Mjingo
DIRECTOR GENERAL



Message from the Editor



Dr. Janemary Ntalwila

Dear readers,

Greetings from TAWIRI, and welcome to the ninth issue of the TAWIRI newsletter. Our newsletter aims at keeping our stakeholders on updated information on wildlife research efforts undertaken to overcome the critical conservation challenges. The current issue brings together important information and efforts that has been taken to reduce the increased Human-Wildlife Conflicts (HWC) in different areas using best practices approaches. As you might be aware that, the Government in collaboration with stakeholders had continued to take measures to address human wildlife conflicts in the country. Among the measures undertaken include development of the five years National Human Wildlife Conflict Management Strategy of 2020-2024 which was launched in October 2020. The strategy advocates best practices through engagement of communities on how to best use the tested approaches and also to design mechanisms that will enable communities to build resilience in co-existing with wildlife. Training and awareness raising to local communities and engagement of all stakeholders has been emphasized. Is important noting that, management of human-wildlife conflicts need to empower communities to initiate and manage mitigations that will enable to protect them and increase their resilience to wildlife impacts.

This newsletter thus brings to you some important information that include training programs conducted by TAWIRI in various human-wildlife conflicts hot sport zones, awareness raising to communities through the use of best practices to mitigate HWC, important of protecting wildlife corridors and dispersal areas to reduce conflicts and improve community livelihoods, hippo translocation to reduce HWC.

Further the newsletter provides important information on the coming TAWIRI conference, modes of registration and important deadlines.

You're kindly encouraged to go through the articles to enrich your knowledge on the ongoing efforts to sustain our biodiversity resources and enhance community's livelihoods.

Dr. Janemary Ntalwila

Head - Wildlife Information and Education Unit
wie@tawiri.or.tz



TAWIRI GETS A NEW DIRECTOR GENERAL,

Dr. Ernest Mjingo

Congratulations **Dr. Ernest Mjingo** on your new position. Your ascension is an inspiration to all who wish to grow. You dreamed big, you worked hard, and you've earned the recognition that comes with your new appointment. May all your work and dreams continue to bring you to new levels. Your dedication and hard working are the ingredients that went into this delicious success. It was your skills and passion that added values in your newly appointment. A new appointment is one of life's grand milestones. Let your past experiences fuel you with the energy you need on the new position.

You have worked hard on yourself and created the necessary advantage to convince others of your potential and abilities; which paid off at the end.

This gives us, TAWIRI family the honour and pleasure to extend our sincere congratulations and warmest wishes on your position.

Witnessing to your hard working and outstanding journey from a researcher to a **"Director General"** is an inspiration to many of us who believes in hard working. Your contribution to the growth of this organization proves once again that there are no shortcuts to achieve greater heights. Your appointment has unfolded future opportunities not only for the organization but also for TAWIRI staff and stakeholders.

We wish you the best of luck in your new post, we have no doubt that you will excel in this role and make everyone proud. We look forward to even more success to achieve TAWIRI's mandated roles. Together, we promise to work

hard, support each other and dedicate our time, and skills for the success of our Institute and the Ministry at large to make the dream true on sustainable conservation of natural resources and livelihood improvement.

Once again congratulations



Dr. Ernest Mjingo in his routine research work, treating an injured Oryx.



CALL FOR ABSTRACTS SUBMISSION AND REGISTRATION THE



13th TAWIRI SCIENTIFIC CONFERENCE

6th – 8th DEC 2021



Theme

**“Wildlife Research for Enhanced
Biodiversity Conservation and
Livelihood Improvement”**

Where

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Deadlines: Abstracts: 30th Sept 2021
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Tanzania Wildlife Research Institute (TAWIRI), is a non-profit making parastatal organization under the Ministry of Natural Resources and Tourism (MNRT), established by Act of Parliament of the United Republic of Tanzania No. 4 of 1980 with the overall responsibility of carrying out, coordinating and supervising all wildlife research in the country. The institute is also responsible for disseminating timely and quality scientific information to enhance the management and sustainable utilization of wildlife resources in the country.

Kindly be informed that this year, TAWIRI will be hosting the 13th Scientific Conference that will be held from the 6th to 8th December 2021 at Arusha International Conference Center (AICC), Arusha, Tanzania. The conference aims to disseminate and share wildlife research findings and experiences with the Government, Wildlife Management Authorities, Conservation partners and the general public to help gain an understanding of the current conservation challenges facing our country and the world at large. The theme for this year's conference is *“Wildlife research*

for enhanced biodiversity conservation and livelihood improvement”. The same has been drawn to reflect the current Biodiversity challenges, national development priorities and tradeoffs between conservation and people's livelihoods. The conference is expected to bring together about 300 scientists, conservation managers and wildlife conservation stakeholders/partners, Policy and decision-makers, private partners working in the country, region and across the world. We would like to bring to your attention the following important updates: -



www.tawiri.or.tz

Conference sub-themes:

- i. Human-Wildlife Interactions;
- ii. Habitat and Biodiversity Conservation;
- iii. Ecosystem Health and Wildlife Diseases;
- iv. Climate Change and - ecological resilience;
- v. Water Resources and Wetland Conservation;
- vi. Natural Resource Policies and Good Governance;
- vii. Industrialization, emerging economic opportunities, infrastructure development and biodiversity conservation;
- viii. Emerging Technologies and Conservation;
- ix. Wildlife Ecology and Ecological Interactions;
- x. Monitoring of Wildlife Population and threatened species;
- xi. Nature and Cultural Heritage Tourism Development;
- xii. Bee ecology, Beekeeping and Api-tourism; and
- xiii. Outreach services (extension-education on biodiversity conservation)

Abstract's submission

A call for abstracts is open from 25th March and the deadline will be on 30th July 2021. Abstracts should be limited to a maximum of 300 words for both oral and poster presentations. Specifically,

the abstract should be organized as follows; title, name (s) of the author (s) and addresses, brief background/objectives of the study, methodology, results and conclusion. Keywords should not be more than five arranged in alphabetical order. The address of the correspondent author should be indicated. Authors of accepted abstracts for oral/poster presentation will be notified by August 30th 2021.

Symposium, Workshops, Seminars and Round table discussions

Kindly note that the conference is open for local and international conservation organizations, individual researchers, Non-Governmental Organizations, Government institutions and local government authorities. Those wishing to organize special symposia, workshops, seminars and round table discussions are advised to contact the organizing committee well in advance.

Important:

This year, Symposia, Workshops and Seminars will be organized a day before the main conference dates, while those who wish to organize short round table discussions will be arranged in the evening after conference hours. Abstracts for symposia, seminars and workshops should indicate the title, organizers, number of presenters/participants and their topics. Submissions that will not comply with the above criteria will not be considered.

Contact email

All enquiries and correspondences, that include submission of abstracts for oral and poster presentation as well as symposia, workshop and seminars, should be sent to conference@tawiri.or.tz. The use of individual emails (i.e. to TAWIRI staff personal emails) will not be considered.

Presentations and submission of full paper submission

Oral/poster presentations at the conference will be subject to the submission of full manuscripts.

The deadline for submission of full papers will be on 30 October 2021.

The length of each full manuscript should not be more than 12 pages including references (single-spaced). For poster presentation, the poster size should not exceed 120cm x 90cm. Instructions to authors during the preparation of full papers are available at the TAWIRI website www.tawiri.or.tz.

Virtual Video Presentation

Understanding this year's global challenges which may hinder some participants from presenting their findings, we are planning to organize a virtual video presentation for those who will not manage to travel to Tanzania. However, given the huge subscription cost involved, participants willing to present/participate in the conference through this method will be obliged to pay the same registration cost.

In this category, you will be required to submit a previously recorded video (***allowed formats will be***



notified) about your presentation, which will be played to the audiences in the scheduled session during the online conference. During this time presenters will be required to be online to answer questions from the audience if any. Allocated time will 15 min for video presentation and 5 min for discussion.

The virtual presenters should send their recorded videos one month before the conference dates through, conference@tawiri.or.tz. Talks should clearly show the talk title and the name of the presenter and authors.

Registration

Visit the TAWIRI website (www.tawiri.or.tz), open the TAWIRI Conference toolbar to fill the online registration form.

Registration fees

A. Early bird registration fee

The following rates in categorized groups will be applied per person:-

- i. East Africans: 270,000.00 TZS
- ii. Non East Africa: 250.00 USD

- iii. Tanzania Students: 200,000.00 TZS
- iv. Virtual presentation TZS 200,000/- for East Africans and 150 USD for Non-East Africans.

Student Sponsorship

Target Group: University students enrolled in undergraduate and postgraduate programmes from across the country.

Eligible Applicants

- Must be Tanzanian enrolled in a university within the country and pursuing a degree course relevant to the conference

Selection Criteria

- Must submit an abstract and full paper
- The submitted paper has to address one of the conference sub-themes
- The applicant should submit their applications with full papers not later than 30th August 2021 at 16:00 hrs. All application letters with a scanned Identification card, introductory letters and papers should be sent to conference@tawiri.or.tz

- Only shortlisted students will be contacted for funding considerations
- Funding will cover, conference participation fee, public transport and accommodation

B. Late or onsite registration

- Late registrations for all categories listed above will pay an additional cost of 30% of the early registration fees.

Important notice on registration

- i. Early bird registration is open from 30th March – 30th August 2021
- ii. Tanzanian students must send to TAWIRI supporting letters from their institutes/ universities/colleges and a copy of their student ID.
- iii. East Africans should provide evidence of their identity (i.e., Submitting a copy of the Passport cover and first pages (Kenyans, Ugandans, Rwandans and Burundians).

Payment of registration fee:

Mode of Payment: Following the current Government payment guidelines, before making any payment please ask for a control number from the accounts office by sending an email to conference@tawiri.or.tz.

Important: Do not make any payment through the traditional method we used previously, currently only government electronic payment Gateway (GePG) is allowed to settle all the bills. For further clarification seek for payments, kindly contact Mr. Daniel Wana through, the email daniel.wana@tawiri.or.tz; Mobile: +255 783 924 290

Language

The conference language is **English**. The use of **Kiswahili** will be considered for special presentations.

Venue

The conference will be held at the Arusha International Conference Centre (AICC) in Arusha municipality, Arusha, Tanzania

Accommodation

We recommend participants make their hotel bookings. Arusha has a range of good hotels and lodges. Alternatively, contact the TAWIRI Conference Organizers in case you need assistance in hotel booking through;- conference@tawiri.or.tz

Tourism and sightseeing

Arusha city, popularly known as the **City of Destination** is a hub of tourism activities in Tanzania, with a number of nearby tourist attractions including Arusha National Park, Kilimanjaro National Park, Tarangire National Park, Lake Manyara National Park, Ngorongoro Conservation Area and Serengeti National Park, cultural tourism centres etc. Participants interested to participate in tourism activities before or after the conference should contact any of the tour companies in Arusha/Tanzania. Alternatively, contact the TAWIRI Conference Organizers through conference@tawiri.or.tz for assistance.

For more information and updates, visit the TAWIRI website at www.tawiri.or.tz or contact the organizing committee using conference@tawiri.or.tz

We look forward to seeing you during the conference.

Yours sincerely,
TANZANIA WILDLIFE RESEARCH INSTITUTE

We look forward to seeing you during the conference.



TRAINING AND AWARENESS RISING TO REDUCE HUMAN-ELEPHANT CONFLICTS IN HOTSPOT AREAS-TANZANIA

Janemary Ntalwila, Neema Kilimba, Victor Kakengi, Lemuta Meng'oru, Revocatus Meney and Emmanuel Masenga



Participants of the HEC mitigation training at Tunduru District held on May 2021. Seating at front line, third from left is Hon. Julius Sunday Mtatiro, District Commissioner Tunduru District.

Introduction

Globally, in the face of socio-economic, technological, ecological, political, and policy changes, human-wildlife conflicts (HWC) are increasingly featuring as a prominent conservation issue affecting wildlife survival and communities livelihoods. Human impacts through poaching, illicit trade, habitat destruction and retaliatory killing have significantly reduced the population of wildlife species in many regions globally. For instance, human impacts have brought to the verge of extinction a number of species such as lion (*Panthera leo*), cheetah (*Acinonyx jubatus*), elephant (*Loxodonta africana*), black rhino (*Diceros bicornis*) and tiger (*Panthera tigris*). .

Human population growth adjacent protected areas is important driving factor for increased HWC as it causes humans and wildlife to compete

for space and other resources. As human demand for food, fuel, settlements, arable and grazing land grows, wildlife habitats decrease. Natural land cover is increasingly being transformed into urban land and associated infrastructure at the expense of wildlife. Human presence and activities on migratory routes, wildlife corridors, breeding sites and dispersal areas are reducing the home ranges of many species and interrupting the ecological processes and functions of these critical wildlife areas. On the other hand, humans settling and using these areas to earn their living are risking being killed or wounded by wildlife and incurring economic losses through crop raiding, livestock depredation and property damage. HWC has become so pronounced to the extent of threatening wildlife conservation as well threatening the survival of wildlife species



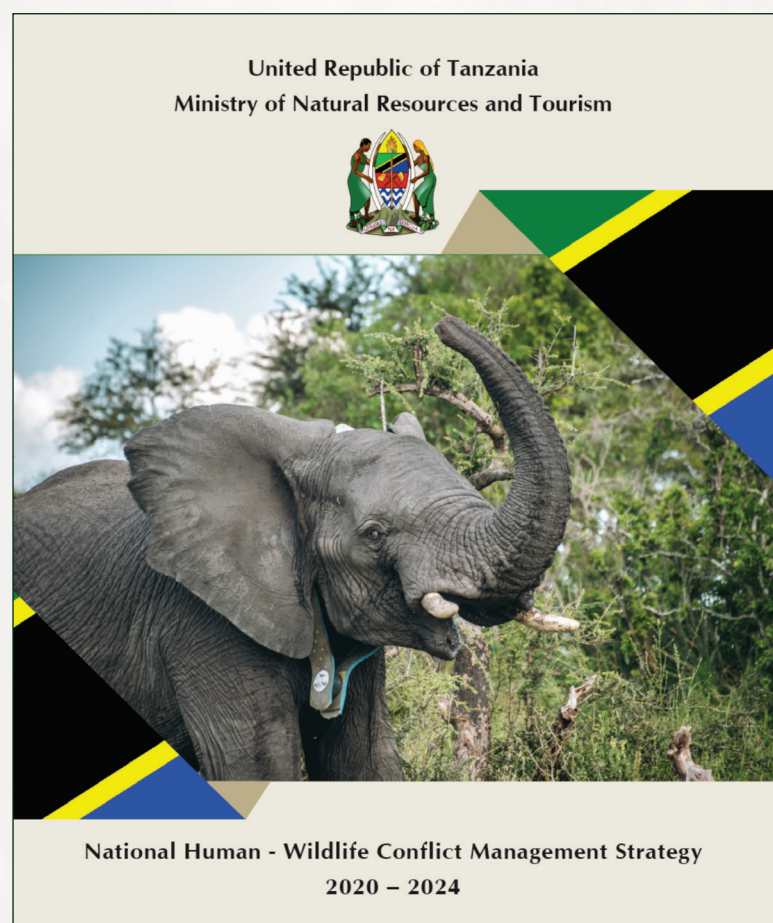
through increased retaliatory killings as a way of controlling wildlife causing problems. Other driving factors of HWC include Lack of land use planning and minimal implementation of village land use plans in place, Climate change where as extreme weather events are likely to also exacerbate HWC in many areas. Prolonged droughts, floods, heat waves, and desertification affects both needs of communities and wildlife.

Losses incurred by Wildlife

HWC present huge losses in terms of livelihood and national economy. When livelihood is negatively impacted by wildlife without adequate measures to address the challenge local communities, resort to retaliation and illegal activities that can guarantee their survival. Studies conducted in Serengeti and elsewhere in the world have indicated that local communities experiencing economic losses from wildlife have minimal degree of tolerance and support to conservation initiatives. The most affected species include elephant, lions, and wild dogs. Reduces community support on conservation, tolerance for poaching, and disputes between protected area managers and communities are among the impacts of HWC. Local communities are against wild animals especially those highly involved in the conflicts. It should be noted that most of wild animals involved in HWC are the large carnivores and herbivores such as lions and elephants respectively, and these animals are the keystone species that play significant role in the ecosystems and are flagship species for tourists' attraction. The main type of conflicts among others are crop raiding, human injuries and death, livestock depredation and infrastructure damages.

Realizing the importance of sustainable wildlife conservation for improved livelihoods to communities living adjacent protected areas, the Government through the MNRT launched the first National Human-Wildlife Conflict Mitigation Management Strategy of 2020-2024. Among

many other goals, the strategy emphasizes the necessity to train the local communities that are vulnerable to human wildlife conflicts. The strategy highlights that, management of human-wildlife conflict should focus on empowering communities to initiate and manage mitigation and protection for themselves, and to increase their resilience and co-existence with wildlife. For this to happen, a well-coordinated training program need to be done and should be coupled with committed support from communities, and conservation partners.



Training Communities on best practices mitigations

Understanding the value and importance of using scientific research findings in solving conservation challenges, the Minister for Natural Resources and Tourism Hon. Dr. Damas Ndumbaro (MP) directed TAWIRI to coordinate the HWC training on non-lethal mitigation measures to reduce HWC country wide, starting from the most



affected districts. TAWIRI through its mandatory role of disseminating, training and awareness raising to communities using research findings, launched a training program in April 2021. The training focused on the most prominent conflict between people and elephant. Currently, there has been an increased HEC throughout the country. The training is focusing on the most affected districts that include among others, Busega, Bariadi, Meatu, Itirima, Serengeti, Bunda, Tunduru, Namtumbo, Mvomero, Ruangwa, Liwale, Monduli, Mwanga and Same. The program aims at equipping communities with necessary knowledge and skills on **non-lethal methods** to reduce HEC and increase resilience among communities living adjacent protected areas. Currently the training has been conducted in Bariadi, Meatu, Itirima and Busega districts (Simiyu region), Tunduru and Namtumbo Districts (Ruvuma region), Mwanga and Same districts (Kilimanjaro region). The aforementioned districts are among the most affected districts with higher HEC incidences in the country. HEC involves not only agricultural losses, but also a complex social dimension in the most affected areas. There has been an increased agricultural losses resulting from crop damages which results into food shortage, loss of cash crops, leading to economic losses for the rural communities whose daily lives depend on small scale farming (Dublin and Hoare, 2015).

TAWIRI in collaboration with Ministry of Natural Resources and Tourism, Tanzania National Park (TANAPA), Tanzania Wildlife Management Authority (TAWA), Districts authorities and other conservation partners (Fredkins Conservation Fund, Honey Guide Foundation, WWF, AWF, PALMS Foundation, Tanzania People and Wildlife, FZS, The Nature Conservancy) have been training the Trainer of the trainees (ToTs) in their respective villages. The training focused on best practice mitigation measures towards Human Elephant Conflicts (HEC). The training comprises two sessions' theory and practical. To date a total of 120 ToTs have been trained in the

nine districts (Meatu, Bariadi, Itirima, Busega, Tunduru, Namtumbo, Mwanga and Same), and monitoring tool was set where each trainees was assigned a special number which will help in monitoring and evaluation. For sustainability, trainees were equipped with some important tools for training continuation. A follow-up plan has been developed, where all trainees will be reporting the District Game Officers on follow-up sessions which will be organized at district level.

HEC mitigation measures trained

ToTs were trained on both scaring methods and site-based crop protection non-lethal HEC mitigation measures. These included use of chili deterrents such as chili blocks production, chili fencing to buffer crops fields from marauding elephant. Also they were trained on how to place beehive fences in mostly affected selected sites in each ward. During the training, promotion of new mitigation approaches using HEC mitigation tool kit was demonstrated. The kit comprised torch with high lumen >1000, strong horns, chili crackers, and roman candles. The tool Kit has been proved to be effective in chasing away the marauding elephants in Serengeti ecosystem and West Kilimanjaro.

For sustainability, TAWIRI has developed a training manual and popular version of simple materials for education and training purposes on HEC mitigation measures. Trained villagers were given copies for easy follow-up. For better improvement of community livelihood, TAWIRI has also advised District authorities, Management authorities and conservation partners to support community on HEC mitigations alternative approaches. Communities living adjacent to Protected areas tends to expands farms into wildlife habitats for subsistence farming hence, escalating HEC incidences. For example, in Tunduru district a total of 75 HEC incidences were reported in 2018, and increased to 193 in 2019. In these incidences farm raiding raised from 569 acres to 1,566 acres. The situation was even worse



in 2020 when 1,977 acres were raided. In order to improve the community livelihood and reduce HEC incidences, one of the best approaches is to support communities by providing more training, support them with necessary equipment such as beehives for fencing which will also increase income to communities through bee products (Honey, bees wax, and other byproducts).

Introduction of alternative income generating activities apart from small scale farming is highly recommended. In addition formulation and training of community members on microcredits schemes like how to form Community Conservation Bank (COCOA) will add value and make communities more capable in managing losses incurred from wildlife. Formulation and management of community based tourism modules such as cultural tourism business will be of more useful for community to gain income from wildlife resources.

Combining technologies and indigenous knowledge innovations is also important in fighting against HEC. Villagers were also motivated and encouraged to use their local knowledge to innovate some mitigations that could help in mitigating HEC. Village Scouts on Serengeti district have innovated an equipment which when used with some thunder flushes, hit on a hard rock or stoned it produces a strong sound like a bullet which scares elephant away. The training has impacted positive minds to the communities, before training they seemed to be totally despaired that there is no way they can solve the problem and protect their crops and their lives from elephants. However, after explaining to them how the methods work, and the combination of methods that can together deter elephants, they gained a positive attitude. Getting feedback from one traditional leader Chief Kalolo from Jakika Ward, he commented that, his community members were happy with the training and he said;-



“If these methods will be sustainable we will have enough food, we will cultivate potatoes, cassava and all other crops, we will be safe, no death, no injuries but also we will protect elephant from being poached”.



Continue page 16



Most popular, affordable and best practices HEC mitigations that were introduced and adopted by Community members in HEC hotspot areas

A. Chili based mitigations

i. Practical training on chili fencing



ii. Practical training on Chili blocks production



iii. Practical training Beehive fencing



B. Practical training on the use of Crop protection tool Kit



i. Use of strong torch



ii. Use of strong horn/vuvuzela



iii. Use of Roman Candles



iv. Use of Chilli crackers





.....from page 13

The use of strong torch, horns, chili bombs, chili block, chili fence, Roman candle and bee hives fencing are the friendly measures for HEC mitigation, they are cheap and can easily be adopted by the villagers. Some of the materials are easily accessible in their environment. We recommend that more training should be provided in other zones where the HWC are so pronounced to the extent of putting people's lives and properties in danger. Also monitoring the effectiveness of the methods taught should be observed. We call upon participation of all stakeholders to actively support in reducing these conflicts especially in training and mostly important in provision of all necessary tools that cannot be easily purchased by villagers.

We acknowledge the financial support and coordination from the Ministry of Natural Resources and Tourism through the Director of Wildlife, Management authorities (TAWA, NCAA, TANAPA, TFS), District authorities especially District Game Officers, conservation stakeholders for their support. Special thanks to Honey Guide (for equipment support), Fredkins Conservation Fund, WWF and Palm Foundation for support during training sessions. We extend our acknowledgement to TAWIRI management for logistics and financial support and East African Television to Mr. Dotto Kadoshi for publicity and documentaries production for further awareness.

The program is still on going, more research is needed to assess the effectiveness of the mitigations per district. Furthermore stakeholders are highly requested to join hands to support communities to resolve the challenge. Investment of equipment and more training is important.

Let us not forget our motto:-

Uhifadhi, maisha yetu, maisha yetu uhifadhi!

Wizara ya Maliasili na Utalii:

Tumerithishwa, tuwarithishe



HIPPOS CAPTURE AND TRANSLOCATION OUT OF MILALA DAM WITHIN MPANDA MUNICIPALITY: CHALLENGES AND PROSPECTS

Emmanuel Masenga, Justin Shamanche, Iddi Lipende, Isaya Kiwale, Godwin Olomi, Lameck Matungwa, Stephano Msumi, Idrissa Chuma, Jane Raphael, Benedict Mbuya, Maulid Mdaki, Dickson Wambura, Athanas Nyaki, Pascal Mrina, Shaban Matwili, Ernest Mjinga and Robert Fyumagwa

Common hippopotamus (*Hippopotamus amphibius*) are large, semi aquatic mammalian herbivore native to sub-Saharan Africa. The hippo is categorized by the International Union for Nature Conservation (IUCN) as vulnerable. They spend much of their daytime resting in water and move out at night to graze on dry land and sometimes during the day time when environmental condition is favorable. Hippos are found in all types of permanent freshwater habitats which include ponds, dams, rivers, lakes and waterholes with gentle sloping banks surrounded by natural vegetation that are used as their grazing areas. They normally avoid extreme dense swampy vegetation and fast-moving waterways with rocky outcroppings. Although hippos prefer open water, they can also survive in muddy wallows;

yet they must have access to permanent water to which they can return in dry season.

Hippos consume approximately 40 kgs of grass each night and may walk up to 35 km during their nocturnal foraging activities. This nocturnal grazing behavior and distance covered in search for pasture predisposes hippos into conflict with people due to crop damage. In rural Africa hippos are known to affect community livelihood through crop damage, injuries and fatality cases. Apart from the negative effect to human livelihood and loss of life, the conflict threatens the survival of the hippopotami through lethal control or retaliatory killing.

Hippo is among the large mammal that has been identified to pose threats to human life and are

said to differ from other mega herbivores by having a dual habitat both terrestrial and aquatic. The need for dual habitats by hippos affect the manner in which hippos utilize resources and survive in areas dominated by high human population densities and fragmented habitats. It is well known that, human wildlife conflicts are more intense on the areas adjacent protected areas, however, the conflicts between people –hippo are different as they can happen even at the centers of towns as they inhabit wetlands that often extend outside protected areas and sometimes even in large towns. Being the main grazers, they destroy crops cultivated close to wetlands and threaten local communities during resource sharing.



One of the mitigations to minimize Human-Hippo conflict frequently used by game officers is lethal method as a control measure. However, in few incidents successful capture and translocation has been performed to manage human-hippo conflicts.

Wildlife capture and translocation is used as conservation management tool in the conservation and management of wild animal populations, enhancing breeding and genetic diversity, population control, problem animal control, trade in wildlife and research in different parts of the world. Despite of their massive advantages, capture and translocation are normally associated with significant risks to the personnel and animals. Capture and translocation has been

done for many years as a way of solving human-wildlife conflicts in different parts.

Recently there has been high human encroachment for agriculture and settlements in Milala dam protected zone found in Mpanda municipality at Katavi region. The catchment undergoes high level of destruction ranging from agriculture (both farming and livestock grazing), illegal fishing, logging, charcoal burning and bricks making. These activities result into high level of environmental degradation including soil erosion and siltation in the dam. Loose protection, attract human activities to Milala dam protected zone that jeopardize the future of the dam, which is a potential water source for Mpanda Municipality. However, due to

high human population increase and high demand of the land, encroachment of protected zone is inevitable.

The Milala Dam

The dam was constructed in 1954 for the purpose of supplying water to Mpanda village (The current Municipal) and the Uruwira gold mine at Mpanda. The Milala dam protected zone is located at North of Mpanda municipality with a total size of 2.3 km² with 0.5 km² covered by dam. The dam remains important water source for the Mpanda town despite availability of additional water sources. The catchment area is conserved by the Water Resources Management Act (Cap 331 of 2014) (GN 80/2014) as Milala dam protected zone (Figure 1).



Figure 1: Map showing protected zone for Milala dam



Hippos of Milala Dam

Historically, Hippopotami existed in the Milala dam since 1960's and their numbers are said to be on an increase to the current estimates of 60 hippos. The source of water for Milala dam is from Katiosho and Shongo rivers that flow down to Mpanda and Katuma Rivers that in turn discharge their waters into

Lake Katavi in Katavi National Park. This shows that hippos are performing well in this dam due to presence of permanent fresh water throughout the year and suitable habitat (Figure 2). However, due to recent encroachment for agriculture and settlements, there is high human-hippo conflict in the area. Local communities use thorn fences, digging trenches, banging

drums, lighting fires and smokes as well as use of torches at night to deter hippos from destroying their crops close to catchment. The conflicts increase through crop damage and recently hippopotami have been linked to two human fatal cases in Milala dam. Thus, a need to translocate them to Katavi National park was directed by the Government on 11th October 2019.



Figure 2: Hippos relaxing in Milala dam during the dry season, October 2019

Hippos capture methods

Thorough preparation for translocation of hippopotami from Milala dam was conducted to understand their abundance, anesthetic drugs, equipment and personnel. The team also inspected the selected release site in the Katavi NP (Massawe hippo pool, Ikuu and Katsunga rivers).

Two motorized boats (fiberglass and aluminium) with 25 and 48 HP engines capacities were used for navigation in all areas in search for hippos in Milala dam mostly during the daytime so that they could be darted. Toyota

land cruiser station wagon and pick up vehicles were also used for transporting the team and on land searching during the day and night time. All areas that were inaccessible by boats and vehicles, active and passive on foot searching was done by the field team with the help of the local people/residents who reported sightings of the hippos when guarding their farms especially during the nights. The field team positively responded by doing urgent field excursions to the sites in efforts to capture hippos by chemical immobilization and physical restraint techniques. In addition, blockages of the



exit and entry points and on land dispersal routes were done for about four consecutive days to increase chances of trapping the hippos. Chemical immobilization is fundamental in this capture and translocation exercise, because when animals are caught in snare or traps, they need to be immobilized and loaded into the crate.

Hippos capture challenges

The team employed several approaches to maximize success of the hippo capture exercise nevertheless the exercise was not successful due to the following reasons; -

First, in the main waters of the dam in October and November 2019, there were hippos before the capture date, however, there was no water in the release sites, and during the onset of the capture hippos disappeared mysteriously. The main possible reason for the disappearance was distension of the dam, which increased the water depth to levels that are not suitable to hippos. High water level in the dam at the time of capture exercise; most hippos were on swampy areas with reeds and tall papyrus grass where boats could not move in addition to upstream river meandering and dense vegetation (reed and papyrus grass beds). River meanders offers many hippo hideouts that were not reachable by the capture team and assessment shows that it is also impossible to load the immobilized animal in the truck in case the animal was immobilized in those areas. Due to high disturbance, they were no longer staying in open swampy areas.

Secondly, the traps were not successful, though were well deployed in dispersal routes. Hippos avoided exit routes with traps and created alternative exit routes. The team believes that high water level has created many pathways. Hippos are also sensitive to smell of the dugout soil. We recommend that these methods to be employed when water level in the dam is decreased and have pit traps dug weeks before setting.

Thirdly, the team found that opportunistic capture was not fruitful due to presence of crop guards who chased hippos in their usual exit routes, and forced them to find alternative exit routes to other areas where the capture team was not deployed. The Milala hippos were scared of torch light hence posed difficulties to the capture team in aiming the darting sites. In addition, the localities were in swampy areas where on foot approach was very difficult and no vehicle could be driven to reach for transportation of the darted hippos.

Lastly, the snares also were not successful, due to presence of many exit routes and pathways from the dam, though were deployed in high hippo utilization zone. The snare traps need more time to remain in the area because hippos are sensitive to smell of the rope.

Recommendation

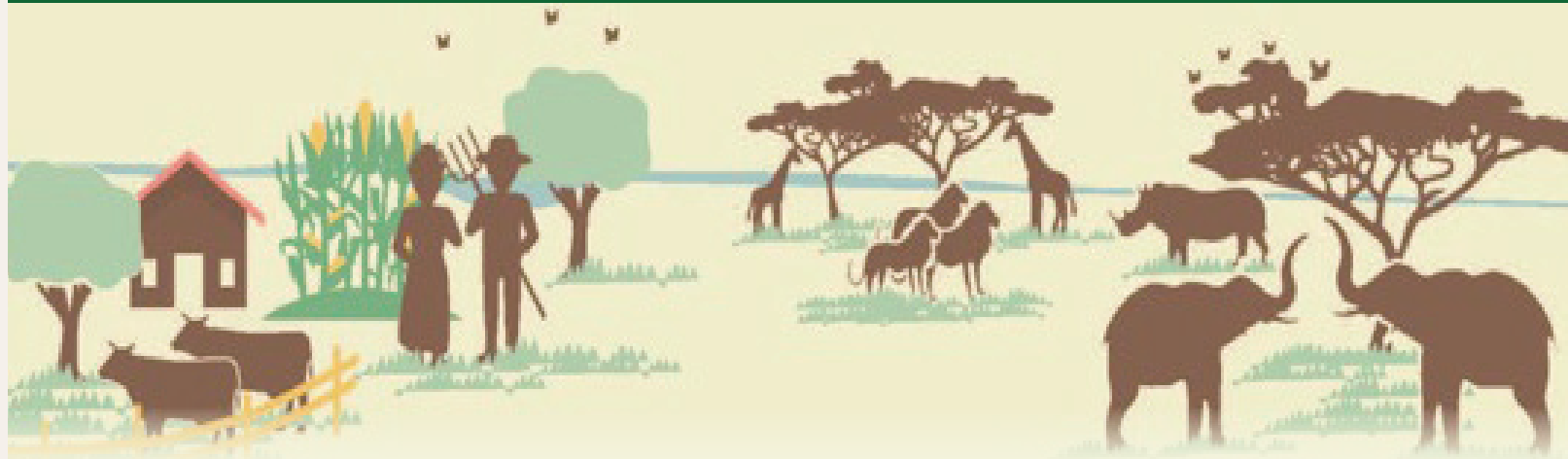
Due to what was experienced during the hippo capture and translocations exercise, the team thus recommended the following should be done as stated hereunder:-

- i. Continue monitoring of hippos movement in and around the dam to effectively plan for the second capture when the environmental conditions is favorable.
- ii. The capture exercise should be suspended to give room for MUWASSA at least to start construction of the fence around the entire dam as designed by the wildlife expert team in collaboration with MUWASSA engineer. This needs to be done under close advice from hippos' specialist before we come back to continue with capture preferably during late rains or early dry season.
- iii. The hippo capture operation should be carried out during the late rains or early dry season when hippos will be settling in the main water body of the Milala dam and their adjacent grazing areas will have minimal mash vegetation cover and more easily accessible than during the heavy rainy season.
- iv. The management team of MUWASSA in cooperation with other stakeholders including the surrounding local communities should protect Milala dam by reinforcing the law to discourage any destructive human activities and settlements.
- v. It is also critical for Government in collaboration with both public and private environmental and conservation institutions and/organizations to educate the local communities around Milala dam.



SENSITIZATION OF COMMUNITIES IN CONSERVATION OF WILDLIFE MIGRATORY ROUTES, CORRIDORS AND DISPERSAL AREAS IN MINIMIZING HUMAN - WILDLIFE CONFLICTS - WESTERN SERENGETI

Kwaslema Malle Hariohay, Janemary Ntalwila, Angela Mwakatobe, Machoke Mwita, Amani Shipella, Baraka Kamese, Eva Izengo and Robert Fyumagwa



Historically wildlife has been an integral part of communities' livelihood in adjacent protected areas all over the world. However, in recent years the co-existence between the two is no longer sustainable due to losses incurred by communities from wildlife. There has been many forms of conflicts between human and wildlife among them been crop and property damages, injury and death to people, and spread of zoonotic diseases. Human-wildlife conflicts (HWC) have been in existence as a result of increased anthropogenic activities in adjacent protected areas with increased pressure on resources due to sharing of resources between wild animals and people. The problems have been increasing year after year and become a great concern for the sustainable wildlife conservation and livelihoods of rural communities bordering protected areas. While struggling to improve communities' livelihoods, a need to understand that conservation of wildlife and their habitats requires strong commitment and that, support from grass-root communities is highly needed. In turn, communities require relevant information and knowledge in order to implement sustainable conservation practices in their village lands. Thus, education and awareness creation to rural communities is critical for sustainable conservation of wildlife and their habitats.

The National Wildlife Policy of 2009 emphasizes on the involvement of local communities in the protection of wildlife resources for improved livelihood and the government of Tanzania has been taking several initiatives on this. Unfortunately, conflicts between human and wildlife are increasingly reported from many ecosystems in the country. In trying to bridge the gap on losses incurred through wildlife and benefits that may be accrued from wildlife to communities, awareness and motivations are a key focus areas. Communities need appropriate knowledge about the multiple benefits of conserving wildlife resources and the best ways to interact with them. Listening to local voices, understanding cultural ways of life and promoting dialogues in grass-root communities is an essential step towards integrating local communities into mitigating HWC. It should be well understood that, decreasing conflicts between human and wildlife depends much on communities' attitude towards adopting best practices of mitigating HWC. If communities are well equipped with skills to mitigate conflicts, and adopt these strategies it helps in long-term conservation of wildlife and their habitats as well as improving community's livelihoods.



Initiative for Conservation of Serengeti-Mara Transboundary Ecosystem

The Serengeti- Mara Transboundary Ecosystem (SEMA) was a three years project (2018-2021) funded by the European Union, and managed by Vi-Agroforestry, a Swedish development organization. The project was implemented in Tarime, Bunda and Serengeti districts in Tanzania and Narok and Bomet Counties in Kenya. The project partners are Bunda Farmers Development Support Organization (BUFADESO) in Tanzania and Fintea Growers Co-operative Union Ltd (Fintea) in Kenya, while TAWIRI in Tanzania was an Associate Partner.

SEMA was an important project in the Serengeti-Mara Transfrontier Conservation Area (TFCA). To understand the socio-ecological values of wildlife corridors, migratory routes and dispersal areas, Vi-Agroforestry in collaboration with BUFADESO, TAWIRI and Local Government authorities implemented the SEMA project. Among many objectives the project had, was focused on rehabilitating, protecting and conserving wildlife corridors in Western Serengeti and Maasai Mara National Reserve to support in reducing human-wildlife conflicts. The project also arguments the information gaps that were identified. Despite occasional conservation efforts targeted at this TFCA, there has been a low level of community awareness, knowledge and involvement on conservation.

Participatory identification of the corridors by joint corridor verification field visits and consultative meetings between stakeholders (communities and government agencies) were carried out and facilitated to support the action in raising awareness on the importance of the corridors. The activity was paramount in securing wildlife habitats to reduce conflicts and has the potential to contribute to increased benefit sharing derived from tourism in animals' corridors.

Wildlife corridors

Wildlife corridor is defined as an area of land used by wildlife species in their seasonal movement from one part of the ecosystem to another in search of basic requirements such as water, food, space and habitat. They are also defined functionally as an area used by animals to pass from one 'habitat patch' to another; or structurally, as an area that connects two patches of suitable habitats by passing through a matrix of unsuitable habitats. Dispersal area is an area habitually used by wild animals for feeding, laying, storing eggs, rearing or feeding their young and includes breeding places; and "migratory route" as an area of a strip or zone of land used by herds of wild animals during their migratory cycle or seasonal movements. Wildlife disperse and migrate across different landscapes for search of necessary needs such as pasture, water, and breeding grounds and reducing the risks of predations. Furthermore, these movements also enhance genetic viability of the species. Wildlife migratory routes and corridors are important in connecting core habitats and thus they are critical for species' survival and long-term viability of ecosystems. Understanding the Socio-ecological importance of corridors, migratory routes and dispersal areas, Tanzania has stated commitment to maintaining connectivity between protected areas as stated in Wildlife Conservation Act of 2009 that, "The Minister may, in consultation with a relevant local authority and by order in the Gazette, designate wildlife corridors, dispersal areas, buffer zones and migratory routes". Protecting wildlife inhabiting the area, securing wildlife corridors, dispersal areas, critical habitats and buffer zones for core protected areas is important and clearly spelled by sections 5(b) and 74 of the Tanzania Wildlife Conservation Act No 5 of 2009.

Most of wildlife corridors, dispersal areas and migratory routes in Tanzania are located in open areas across village lands and some of them are rich in biodiversity, they serve as a source of water for wildlife from protected areas particularly during



dry season. However, these important lands are under threat due to increased anthropological activities. The current uncontrolled cultivation, settlement, deforestation and grazing are posing direct and serious threat to the existence of wildlife corridors in Tanzania.

In Tanzania, wildlife protected areas are not fenced which allows wildlife to move freely into village lands and across farms. This calls for a need to engage communities in protections and conservation of wildlife. Involvement of local communities is even much more important as the law requires wildlife corridors, dispersal areas and buffer zones to be secured. In this case, communities must therefore be consulted, educated, motivated and encouraged to be part and parcel of conservation efforts.

Mapping of corridors and dispersal areas

To understand the value of the Serengeti Ecosystem and increased conflicts between people and wildlife in western Serengeti, in December 2019, a team of experts from TAWIRI, ViAgroforestry, BUFADESO and Game officers for Bunda, Serengeti and Tarime districts conducted a survey to map the wildlife corridors, migratory routes and dispersal areas in villages adjacent to Serengeti National Park. The team used the basic techniques such as indigenous knowledge and experience on the historical migratory routes and thereafter the ground tracking of the routes using a GPS handset was done. Data from GPS collars were obtained from Grumeti Fund which was mainly for Elephant movements. Serengeti ecosystem is among the vulnerable areas that faces the current increasing threat of land fragmentation and loss on connectivity between protected areas that allow passage of wildlife. The study came out with some evidence that, in western Serengeti, one of the SEMA project area, there are some existing corridors and routes. Working with the local people's knowledge, tracking and from previous study, **two corridors** were identified. The corridors are used mainly by **elephants**,



wildebeest, zebra and some gazelles. Of these corridors, one starts from Maasai Mara National Reserve in Kenya to Serengeti National Park through the Ikongo swamp in Tanzania (Map 1 with black line). The second corridor is from Serengeti National Park through Ikona WMA up to Maasai Mara. The corridor traverses through Robana river up to Borenga village (Map 1) and at Borenga village the corridor joins the mentioned first corridor to Maasai Mara National Reserve in Kenya. Several dispersal routes from protected areas of Serengeti National Park, Grumeti and Ikorongo Game Reserves, and Ikona WMA were identified and are still considered existing. In Serengeti and Tarime districts, most of the villages' land bordering protected areas are used as dispersal areas for wildebeest, impala, topi, zebra and elephants.

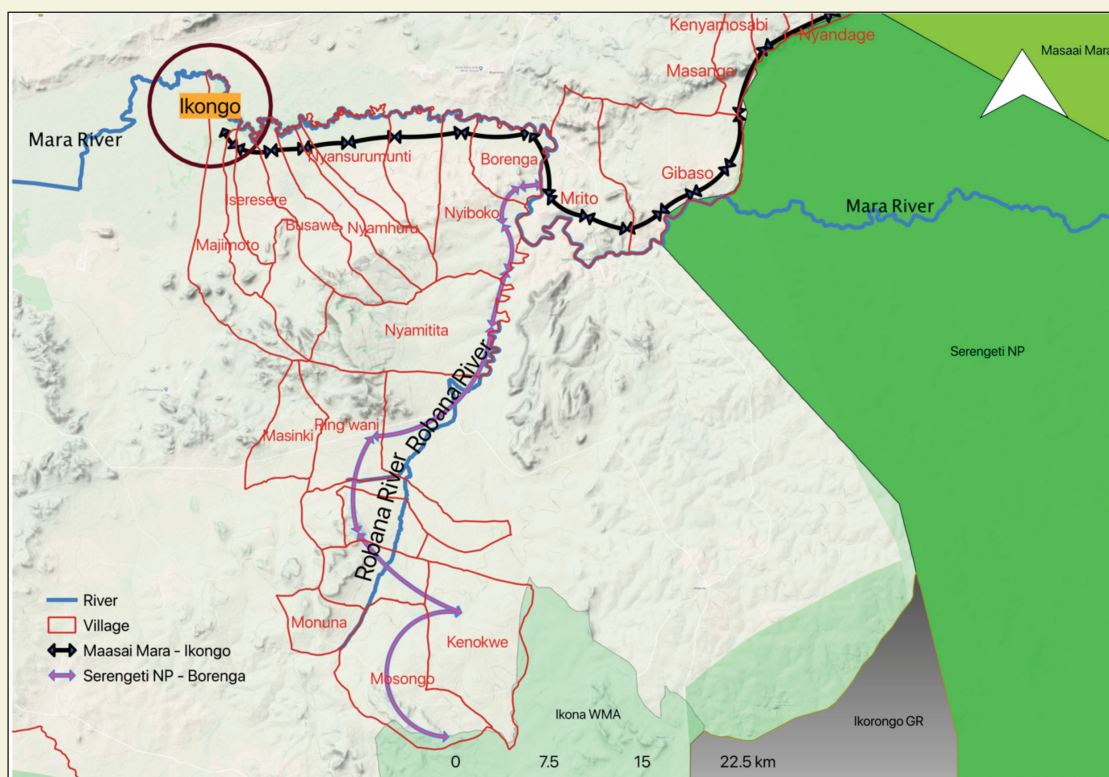
Movements through the identified corridors are seasonal, and are mainly done from June to September every year. The corridor also traverses across Nyanungu, Kenokwe, Mosongo, Nyantare, Kemugesu, Masinki, Nyamitita, Mesaga and Borenga villages of Serengeti district. From Borenga, wildlife mainly elephants, wildebeest, and zebra can move down to Ikongo area through Nyiboko, Buchanchari, Nyansurumunti, Busawe, Iseresere, Majimoto and Hekwe villages up to Ikongo swamp, which is within the great Mara river basin (**Map 1**). After staying at Ikongo swamp for few days animals migrate through villages in Tarime district along Mara river such as Mrito, Gibaso, Masanga, Nyamoko river and Karakatonga (at Gongora swamp) before reaching Masurura, Olongo, Kigori (sub village), Nyandage and Kegonga villages then to Serengeti National Park and finally in Maasai Mara National Reserve. It was also explained that, sometimes elephants and wildebeest can migrate straight from Ikona WMA up to Maasai Mara National Reserve without passing through Borenga village in Mara river basin (Map 1 see the indicated purple line joining the black line towards Maasai Mara).



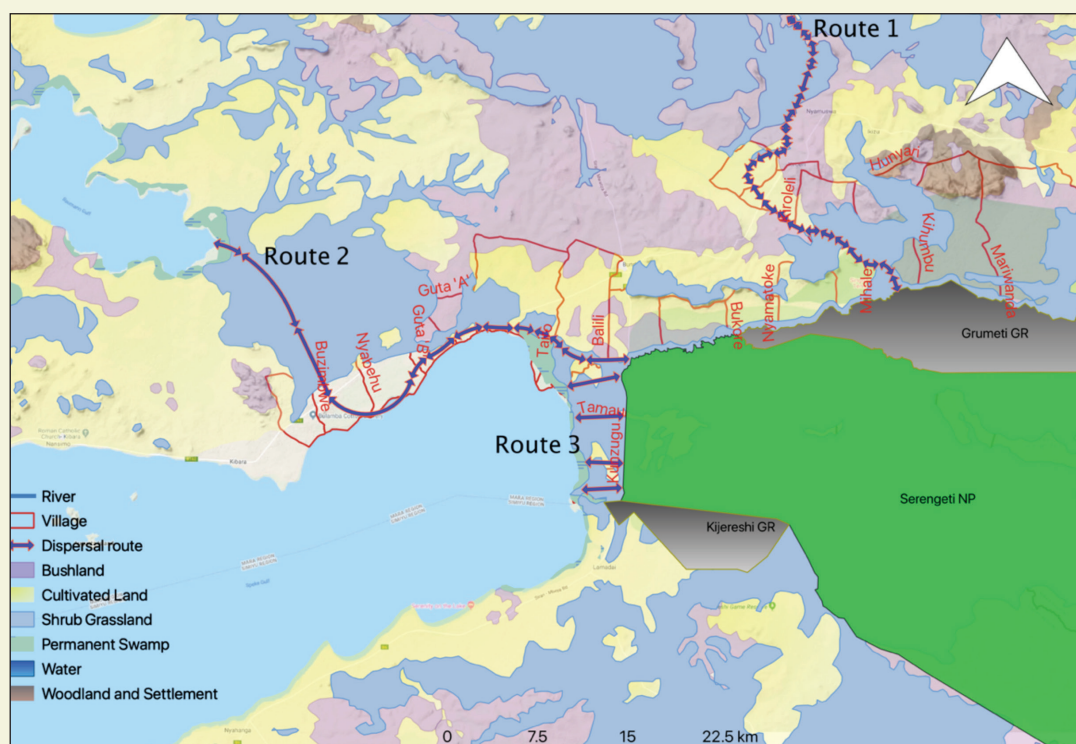
In Bunda district, three dispersal routes were identified, the longest one being from Grumeti Game Reserve (GGR), through Sarakwa, Changuge, Nyangere, Kisangwa through Suguti, Robana and Rwabadamo rivers in Hunyari village which is a boundary between Nyangere, Mihale and Changuge. From Changuge, elephants pass through Kiroreli, Kambugu, Nyaburume to Butiama and use the same route back to GGR and the movement is throughout the year; as a result there is increasing Human-Wildlife Conflicts in these villages, specifically caused by elephants.

Another route that was described and tracked was from Serengeti National Park (SENAPA) -Grumeti Reserve through Butakale, Tairo, Guta A, Guta B, Buzimbwe, Bulamba, Kabainja down to Lake Victoria (**Map 2**). During the movement elephants do cross between different land uses i.e cultivated and settlement areas with few patches of woodland and grassland. A regular route from SENAPA to Lake Victoria through Serengeti, Nyatwari and Tamau villages was also identified as potential dispersal areas for wildlife and these villages are within Speke gulf area. This area is used by both migratory and resident wildlife species such as Impala, Thomson, Topi, Wildebeest, Zebra, Buffalo and Elephants.





Map 1: Two corridors that link Serengeti National Park through Ikona WMA up to Maasai Mara National Reserve, traversesing through Robana river up to Borenga village which then joins the second corridor from Ikongo swamp in Tanzania to Maasai Mara National Reserve in Kenya.



Map 2: Three dispersal areas in Bunda district: Route1; is the longest one from Grumeti Game Reserve (GGR) to Butiama, route 2; Serengeti National Park (SENAPA) - Grumeti Reserve - down to Lake Victoria and a regular route 3; SENAPA to Lake Victoria through Serengeti, Nyatwali and Tamau villages which is a potential dispersal area for wildlife within Speke gulf area.

Raising Community awareness on Socio-ecological values of wildlife corridors, migratory routes and dispersal areas

Wildlife corridors, migratory routes and dispersal areas are vital for ecosystem functioning. Wildlife species disperse or migrate across different habitats due to various reasons that are linked to both external or environmental factors i.e drought, floods, diseases, fires and also to access important needs such as pasture, water, avoiding predation risks and enhancing genetic viability. To ensure the survival of any ecosystem it is necessary to maintain existing wildlife dispersal areas and migration routes and corridors. These are the prime means of securing habitat connectivity, serving as important conduits that preserve access to the larger habitat. Despite the important benefits accrued from conserving wildlife corridors, Human-Wildlife Conflicts appears to be the main threat in their existence. Human-wildlife conflicts continues to increase around many protected areas. In order to resolve these problems, there is a need to develop effective strategies to aid in securing wildlife dispersal areas and migratory routes/corridors is important. Realizing this, Vi Agroforestry through SEMA project in collaboration with Tanzania National Parks and other project partners, implemented important environmental projects such as village land use plans and provided incentives to encourage community participation in conserving wildlife in their village lands.

SEMA conducted training to wildlife community conservation groups/Tembo groups with 75 total

participants from Bunda and Serengeti districts. The training aimed at raising awareness to local communities on the importance of the corridor protection in reduction of human-wildlife conflicts, and land-use planning was among the key tools which were emphasized. Villagers were also trained on the locations of the identified corridors and values that can be obtained if corridors were to be conserved in their land. Among the most important values that were emphasized during the training were socio-ecological values that include:-

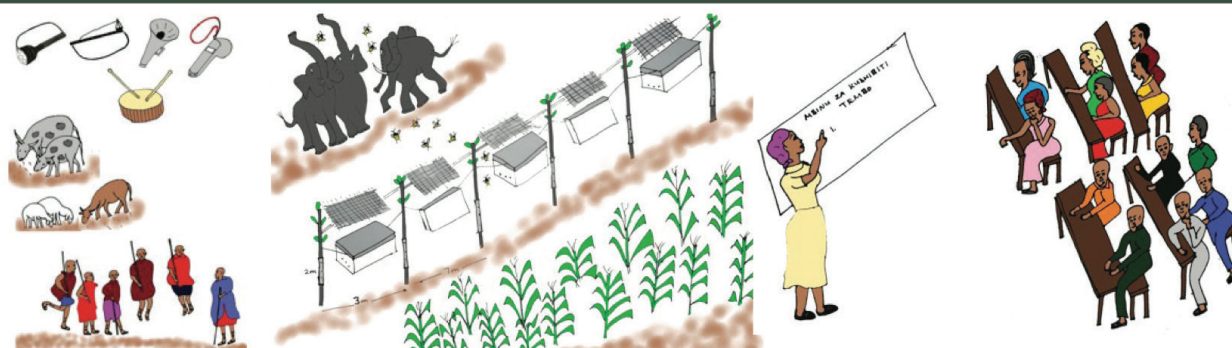
- i. Healthy corridors can help the community to have clean air, adequate supply of clean water, from reserved forest within the corridors.
- ii. If well maintained and conserved, corridors can provide pasture lands for livestock, which will in turn reduce the level of encroachment to the park i.e reducing park-community conflicts.
- iii. They are important recreation sites for communities that can be used for hiking, walking, jogging, cycling, nature photography and wildlife viewing.
- iv. Education and training: Communities were informed on the rich species diversity that the corridors will develop and thus become best and suitable for training and research.
- v. Economic benefits: Natural corridors generate revenue through ecotourism and provide employment opportunities for the areas to young people.





KITABU CHA MWONGOZO

MBINU RAFIKI ZA KUDHIBITI WANYAMAPORI WAHARIBIFU



NIWEZESHE NIWEZE KUJILINDA NA WANYAMAPORI WAHARIBIFU

Mwongozo huu umeandaliwa na Taasisi ya Utafiti wa Wanyamapori Tanzania (TAWIRI) kupitia mradi wa SEMA unaosimamiwa na Shirika la Vi Agroforestry kwa ufadhili wa Umoja wa nchi za Ulaya





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